REMARKS

The Official Action of April 5, 2004, and the prior art cited and relied upon therein have been carefully reviewed. The claims in the application are now claims 1-5, 8-37 and 46, and these claims define patentable subject matter warranting their allowance. Accordingly, applicant respectfully requests favorable reconsideration and allowance.

Applicant notes paragraph 3 on numbered page 2 of the Official Action which indicates that the previous rejection under the first paragraph of §112 has been overcome as regards claims 17, 25, 36 and 37, but is maintained as regards claims 31 and 32.

Claims 31 and 32 have now been amended to specify treatment of disease associated with hormone-like signaling. Withdrawal of the rejection is respectfully requested.

Claim 17 has been objected to in paragraph 8 (page 7 of the Official Action) as being a substantial duplicate of claim 1. Applicant respectfully traverses this objection.

At the time of the Official Action, claim 17 called for a more narrow pharmaceutical composition than does claim 1, i.e. claim 17 called for a pharmaceutical composition "for induction of insulin, human growth hormone or epidermal growth

factor signaling", and therefore claim 17 was not at the time of the rejection a substantial duplicate of claim 1.

To bring out this distinction somewhat more clearly, claim 17 has now been amended to specify that the compound as defined in claim 1 for inclusion in the composition of claim 17 must be a compound which is "capable of induction of insulin, human growth hormone or epidermal growth factor signaling".

The amendment made to claim 17 is of a formal nature only, i.e. made to place this claim in improved form. Such amendment is not a "narrowing" amendment because the scope of claim 17 has not been reduced. No limitation has been added to claim 17 and none is intended. The amendment made to claim 17 is not a substantial amendment relating to patentability.

Applicant respectfully requests withdrawal of the objection.

Claims 1-37, 45 and 46 have been rejected under §102 as being anticipated by each of six different prior publications. These rejections are respectfully traversed.

As can be seen from a review of the six applied citations, all of the disclosed prior art compounds are 5-membered rings, e.g. for the case where m=0, consistent with previously pending claim 45 which should not have been rejected.

Accordingly, applicant has now amended the independent claims to specify compounds where m equals 1-3 consistent with previously pending claim 45 (now deleted as redundant), so that the invention as broadly claimed covers 6-8-membered rings, not disclosed by the prior art.

Applicant respectfully requests withdrawal of the rejections based on §102.

Claim 1-37, 45 and 46 have been rejected as obvious under §103 from Kobayashi et al, JP 09025235, based on the abstract at CAS:126:220705 (Kobayashi). This rejection is respectfully traversed.

As is acknowledged in the rejection itself, the disclosure of Kobayashi is limited to situations wherein m is 0, i.e. all the Kobayashi compounds have 5-membered rings. Kobayashi does not contain any suggestion or teaching, motive or incentive, reason or purpose for any 6-8-membered rings, and therefore there is no *prima facie* obviousness. Moreover, there are important functional differences as well, applicant respectfully noting the following additional facts:

1. The 5-membered rings of the prior art are very prone to hydrolysis whereas the 6-membered rings are much less prone to hydrolysis. Comparing the rate of hydrolysis of the 5-memeberd ring to its corresponding open phosphodiester, the

ring undergoes hydrolysis 1000 times faster. The hydrolysis of 6-membered ring compounds is about the same as the hydrolysis of the open phosphodiester (Kugel L. and Halmann M., *J. Am. Chem. Soc.* (1967 89, 4125-4128).

2. Comparing the biological activity of the two rings systems, it should be noted that the 6-membered ring compounds have an activity about 10 times higher than that of the 5-membered ring compounds (Shinitzky et al, *Eur. J. Biochem.* (2000) 267, 2547-2554).

Applicant respectfully requests withdrawal of the rejection based on §103.

A number of other amendments have also been made for the purpose of improving the form of applicant's claims. These amendments are of a formal nature only, i.e. made to place the claims in better form for U.S. practice. These additional amendments are not "narrowing" amendments because the scope of the claims has not been reduced in these regards. No limitations have been added in these regards and none are intended, and these additional amendments are not substantial amendments relating to patentability.

Applicant believes that all issues have been addressed and resolved above, whereby favorable consideration

and formal allowance are in order. Such are respectfully requested.

Respectfully submitted,

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